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choice feeder yearling steers; and (3) choice feeder 2-year-old steers is shown in table 1[2].

Multiplying the value of a bushel of corn by the number of bushels required for each 100 pounds of gain gives a rough estimate of the cost of that gain and helps in determining the time of sale.

[1] Based on Morrison; a bushel of No. 2 corn has 44.9 pounds of digestible feed nutrients and may be defined as a feed unit.
[2] From USDA Technical Bulletin 900.

TABLE 1
Bushels of Corn (or equivalent) for Each 100-Pound Gain

Kind	Initial weight pounds	1st 100 lbs.	2nd 100 lbs.	3rd 100 lbs.	4th 100 lbs.	5th 100 lbs.	6th 100 lbs.	7th 100 lbs.
Calf	400*	9.0	9.6	10.9	12.5	14.6	17.5†	22.0
Yearling	640*	10.4	12.1	14.3	17.5‡	22.4		
2-year-old	835*	10.6	13.0	16.7**	23.3			

* Common to medium slaughter grade.
† Choice slaughter grade.
‡ Choice slaughter grade reached at 1080 pounds.
** Choice slaughter grade reached at 1185 pounds.

Check Swine Brucellosis

by Alvin B. Hoerlein

Three plans have been worked out for testing and segregating the breeding herds to control this costly and dangerous disease found on Iowa farms.

WHILE SOME swine diseases are much more spectacular in the loss they cause, swine brucellosis is a more underhanded invader into the swine herd —and into the farm family.

The exact cost of this disease to the swine industry in the Corn Belt isn't known. But it has been recognized for many years as an important cause of sterility in the breeding herd. Where a member of the farm family has contracted brucellosis (undulant fever) from infected swine, there's no doubt about the "cost" of the disease.

When spread to man, the disease may cause an acute or chronic incapacitating infection—characterized by a long course of months or even years with frequent relapses. One young Iowa farmer recently had to give up farming after becoming infected from his swine. His case isn't a rare one.

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Often Not Suspected

Often swine brucellosis seems to lie dormant in the swine herd. It causes so little trouble that its presence isn't suspected until—perhaps after several years—a storm of infection breaks.

In infected herds, the most common symptom is that a number of bred sows come back into heat 4 to 8 weeks after breeding. Abortion,

while noted at times, isn't a common symptom. If the sows do abort, it's so early that the feti pass unnoticed.

Brucellosis infection is commonly brought into a clean herd by introducing an infected boar. This causes a severe loss with many sterile gilts resulting. Arthritis, while caused by numerous other diseases, is often associated with swine brucellosis. Milk cows have become infected from diseased swine and have spread brucellosis to man through the milk.

How Program Developed

Because of the importance of hogs in Iowa, swine brucellosis has been one of our major research projects at the Veterinary Research Institute of Iowa State College for more than 18 years. Many other veterinary laboratories in the United States—especially in Indiana, Minnesota and California—have made worthy contributions to the understanding of this disease.

By 1947, even though many of the answers on swine brucellosis weren't known, it appeared that enough information had been produced by research work to warrant farm trials of control measures for brucellosis in Iowa.

With the cooperation of the USDA Bureau of Animal Industry, a project was set up in which farm herds under farm conditions would serve as "pilot herds" to determine whether brucellosis control in swine was feasible.

Dr. E. D. Hubbard, then with the Bureau of Animal Industry,* was selected to carry on the field work because of his experience in bovine brucellosis control. Intensive field studies in the farm herds were checked with detailed laboratory studies of hogs from these herds. Our additional research investigations at the laboratories here supported this work.

What Results Showed

We found that a rather simple testing and segregation program rapidly freed these pilot herds of the disease. And the program interfered little, if any, with normal farm swine production.

* Dr. Hubbard is now with the Veterinary Research Institute at Iowa State.

Conferences with the State Veterinarian and the Bureau of Animal Industry in 1949 indicated that the "time was ripe" to try the testing and segregation program on a larger scale. But we needed a method to recognize herds which weren't spreading swine brucellosis.

The official "Iowa Accredited Swine Brucellosis-Controlled Herd Program" which resulted is entirely voluntary for the swine owner. The state acts in a supervisory capacity —testing blood samples sent in, issuing official certificates to herds meeting requirements and maintaining a list of accredited swine brucellosis-controlled herds in the state. This list is available in the office of the State Veterinarian for farmers who want to make sure they are buying brucellosis-free boars, sows or gilts.

With the state acting in a supervisory capacity only, the swine owner, in cooperation with his veterinarian, must work out details as applied to the individual herd. Bleeding and other expenses must be borne entirely by the owner. No indemnities are paid for reacting animals.

Use "Herd" Basis

We know that in an infected herd there are often animals that are negative to a blood test (agglutination test), but are actually carriers—they carry the infection and can spread brucellosis to other animals. For this reason, it's necessary to carry out control measures on a "herd" basis. Although this blood test isn't capable of detecting *all* infected animals, it's quite reliable in determining whether the herd is infected. If a single animal in the herd reacts positive (in a dilution of 1 to 100 or higher), the entire herd must be considered infected.

Many herds will be found free of brucellosis on the first test. And if all animals are negative (none having a positive reaction in a dilution of 1 to 100 or higher), the entire herd is eligible for accreditation after passing a second negative test 30 to 90 days after the first clean test. Accreditation is on an annual basis. Renewal is made by passing a single clean test on the entire herd, provided that any animals added to the herd comply with accrediting regulations.

If one or more animals in the herd react positive (1 to 100 dilution or higher), the entire herd is considered infected and must be handled as an infected unit. Intelligent use of one of the three plans suggested below will provide an efficient means of developing a herd of brucellosis-free swine without interfering with the normal production schedule of the herd.

The chief source of brucellosis infection is from animals of the old infected herd. However, pigs weaned and separated from the old sows by 8 weeks of age won't often carry or spread the infection.

Plan Number One:

This plan is especially recommended for commercial herds in which the maintenance and propagation of the blood lines is of little importance.

- Dispose of the entire infected herd for slaughter.
- Clean and disinfect all houses and equipment. Rest hog lots if possible.
- Replace with stock from brucellosis-free herds, preferably on clean ground.
- When two clean tests on the entire herd have been passed 30 to 90 days apart, the herd is eligible for certification.

As a result of the accreditation program, farmers now have a source of brucellosis-free animals from accredited herds listed in the office of the State Veterinarian.

Plan Number Two:

The chief source of brucellosis infection is from the animals of the old infected herd. However, pigs weaned and separated from the old sows by 8 weeks of age won't often carry or spread the infection—even though their mothers were infected.

With that in mind, the following plan is recommended for use in herds, especially purebred herds, where it's desirable to maintain valuable blood lines. This is an effective plan for developing a clean herd from the infected stock on the farm.

While this plan calls for only a limited amount of testing, it does emphasize *isolation by segregation* of the old infected herd from the developing young clean herd. There's more assurance of success in herds farrowing one litter per year than in those on a two-litter system.

- Separate pigs from the sows by 56 days of age and isolate the weaned pigs from the old infected herd. This is best accomplished by moving the pigs to clean pasture. This group of pigs constitutes the breeding herd for the coming year.
- Dispose of the old infected herd as soon as possible. The bloodlines are preserved in the isolated young pigs. If another litter is desired, the problems of isolation become more difficult to handle but farrowing is carried out on the same basis. The longer the old herd is kept, the greater the chances of failure. If possible, it's desirable to move the old infected herd to another farm and bring weanling pigs through a stage of quarantine before adding them to the clean herd.
- Test gilts to be used for the following breeding season about 30 days before breeding. Since you probably won't use all gilts, save only the best. Your veterinarian can help you select those to use by selecting only those gilts which are negative in a 1 to 25 dilution. Then breed these gilts to clean boars.
- When these gilts farrow, test them in their individual farrowing pens so that any positive sows and their litters may be separated from the negative sows and litters. Select the next year's brood stock from the litters of the negative sows.
- If the entire herd isn't clean at this time, repeat the process through another year. As soon as two clean tests on the entire herd can be passed between 30 and 90 days apart, the herd is eligible for accreditation.

Plan Number Three:

This plan is not recommended in general, but may be used in small herds where only one or two reactors are found and where no clinical symptoms of brucellosis have been noted.

- Remove the reactors from the farm.
- Retest the entire herd every 30 days, removing reactors when found until a clean test is obtained.
- Two clean tests 30 to 90 days apart will make the herd eligible for accreditation.
- If the herd isn't readily freed of the infection, discard this plan in favor of plans "one" or "two."

Getting Replacements

Once a herd is "clean," reinfection is usually the result of the introduction of animals from other herds. Get replacements from accredited swine brucellosis-controlled herds. And, while they need not be tested, it's an added precaution to test such animals before adding them to the clean herd.

If herd sires are obtained from other sources, buy them well in advance of the breeding season so that they may pass two clean tests at least 30 days apart before being released from quarantine into the breeding herd. Keep bred sows and gilts in strict quarantine until they've passed a negative test after farrowing.

Keep all swine brought onto the farm for feeding purposes in strict isolation from the breeding herd.

Infected animals constitute a potent hazard to human health. The sooner the infected herd is disposed of, the less chance there'll be for human infection. At all times, take the greatest care in handling any infected animals.

Your local veterinarian can furnish additional details and help work out the details of a control program adapted to your own individual situation.

Business More Normal But Still High-Level

MOST OF the panic buying of the summer months has subsided. Business has returned to a more normal basis—but still is on a high level of activity.

For the most part, existing industrial capacity and supplies of raw materials are the main limitations on business activity. Our economy is operating at or near the highest levels in peacetime history.

Looking ahead, further rise in industrial commodity prices seems likely. Wages are rising. So are raw material prices. Business men have upped their spending plans for new plant and equipment. All this means higher buying power—with no corresponding rise in output. The net result will be a bidding up of industrial prices.

Supply of farm products has been ample this fall. So no sharp rise in most farm prices has taken place, although the bulk of farm products are selling higher than a year ago. Nor is any general sharp rise in farm products likely in the near future—although the trend will be upward.

Additional spending growing out of the expanded defense program will provide a sharp boost in federal spending in 1951.